

Patent Claims

1. Clamping device for clamping a flexible packing (2, 3) of a cylinder (1) of a printing press, which said cylinder has an axial channel (6) on its jacket surface, the clamping device comprising:

5 a) a clamping body (10), which has a surface (S) that forms a clamping gap in the channel (6) with an opposite surface (4) for at least one end of the packing (2, 3) protruding through an opening (7) of the channel (6);

b) a pressing means (13; 14; 10a), which presses the clamping body (10) and the opposite surface (4) onto each other with a pressing force (F);

10 c) and a mounting means (12; 14; 1, 8), which forms a support surface (9; 14'; 9'), which touches the clamping body (10) and on which the clamping body (10) is supported;

d) wherein the center of gravity (SP) of the clamping body (10) can be moved, while maintaining the clamping gap, at right angles to a axis of rotation (D_z) of the cylinder (1) in a first direction relative to the cylinder (1) and the support surface (9; 14'; 9') and in a second
15 direction that is not parallel to the first direction relative to the cylinder (1).

2. Clamping device in accordance with claim 1, characterized in that the mounting means (12) can be moved in the second direction relative to the cylinder (1) and it guides the clamping body (10) in and against the first direction.

3. Clamping device in accordance with one of the above claims, characterized in that the
20 mounting means (12; 1, 8) guides the clamping body (10) at right angles to the axis of rotation (D_z) of the cylinder (1).

4. Clamping device in accordance with one of the above claims, characterized in that at least three said support surfaces (4, 5, 9; 4, 5, 14'; 4, 5, 9'), which center the clamping body (10) and mount it movably at right angles to the axis of rotation (D_z) of the cylinder (1), are formed in the channel (6).

5. Clamping device in accordance with one of the above claims, characterized in that the clamping body (10) is arranged rotatably in the channel (6), and a surface of the clamping body (10) that touches the support surface (9; 14'; 9') is round, so that the at least one clamping body (10) can roll and/or slide on the support surface (9; 14'; 9').

6. Clamping device in accordance with one of the above claims, characterized in that the surface (S) of the clamping body (10) forming the clamping gap is round.

7. Clamping device in accordance with the above claim, characterized in that the clamping body (10) is mounted rotatably around a axis of rotation (D_K) and that the round surface (S) is shaped such and has such an extension in the circumferential direction around the axis of rotation (D_K) of the clamping body (10) that the clamping gap is maintained during a rotary movement of the clamping body (10) around the axis of rotation (D_K).

8. Clamping device in accordance with one of the above three claims, characterized in that the round surface (S) of the clamping body (10) is rotationally symmetrical relative to a axis of rotation (D_K) of the clamping body (10).

9. Clamping device in accordance with one of the above claims, characterized in that the clamping body (10) is rotatable relative to the pressing means (13; 14) around a axis of rotation (D_K).

10. Clamping device in accordance with the above claim, characterized in that the pressing means (13; 14) is a spring means, which acts on the clamping body (10) with a force of elasticity (G).

11. Clamping device in accordance with one of the above claims, characterized in that the pressing means (13; 14; 10a) exerts a force of elasticity on the clamping body (10), which said force points radially toward the axis of rotation (D_z) of the cylinder (1) or has at least a radial component.

12. Clamping device in accordance with one of the above claims, characterized in that the pressing means (14) comprises at least one said cylindrical bearing body (14), which is arranged lying in the channel (6), is elastic in its material and/or elastic due to its shape and forms the support surface (14').

13. Clamping device in accordance with the above claims, characterized in that the bearing body (14) is arranged in a inner edge (5, 13), which is formed in the channel (6) and opens toward the opposite surface (4) forming the clamping gap.

14. Clamping device in accordance with one of the above two claims, characterized in that a additional bearing body (14) is arranged in the channel (6) in a inner edge (4, 13) of the channel (6), which said inner edge opens toward a channel wall located opposite the opposite surface (4) in the circumferential direction.

15. Clamping device in accordance with one of the above claims, characterized in that a pin (11), via which the at least one clamping body (10) is supported on the support surface (9; 14'; 9'), projects from the at least one clamping body (10).

16. Clamping device in accordance with the above claim, characterized in that the pin (11) connects the at least one clamping body (10) with at least one said additional clamping body (10) to form a clamping body group, and the clamping bodies (10) of the clamping body group are supported via the pin (11) together on the support surface (9; 14'; 9').

5 17. Clamping device in accordance with one of the claims 1 through 14, characterized in that the channel (6) is provided for a plurality of said packings (2, 3) arranged axially next to each other, and no more than a single clamping body (10) is provided per packing.

18. Clamping device in accordance with one of the claims 1 through 14, characterized in that a single clamping body (10) is arranged in the channel (6).

10 19. Clamping device in accordance with one of the above claims, characterized in that the center of gravity of the clamping body (10) is movable in relation to the mounting means (12; 14; 1, 8) at right angles to the force (G, Z) exerted by the pressing means (13; 14).

20. Clamping device in accordance with one of the above claims, characterized in that an opposite surface (4, 5) each is formed for the clamping body (10) on a leading side of the channel
15 (6) and on a trailing side of the channel (6) relative to the rotating cylinder (1).

21. Clamping device in accordance with the above claim, characterized in that the clamping gap can be formed with one or the other of the opposite surfaces (4, 5) as desired depending on the direction of rotation of the cylinder (1).

22. Clamping device in accordance with the above claim, characterized in that the pressing
20 means (13; 14) presses the clamping body (10) simultaneously with the pressing force (F) against

the opposite surface (4) formed on the leading side of the channel and with a pressing force (P) against the opposite surface (5) formed on the trailing side of the channel, wherein a force (G, Z) exerted by the pressing means (13; 14) on the clamping body (10) forms a triangle of forces with the clamping force (F) and the pressing force (F) [sic - Tr.Ed.].

5 23. Clamping device in accordance with the above claim, characterized in that the opposite surface (4) formed on the leading side of the channel and the opposite surface (5) formed on the trailing side of the channel are shaped such and oriented such in relation to a radial (R) to the axis of rotation (D_z) of the cylinder (1) that the at least one clamping body (10) is pressed against both said opposite surfaces (4, 5) with a, essentially equal force (F, P) each.

10 24. Clamping device in accordance with one of the above claims, characterized in that a plurality of the clamping bodies (10) are arranged at axially spaced locations from one another and that the pressing means (13; 14) has a plurality of said spring elements (13; 14), which are arranged at axially spaced locations next to each other in the channel (6) along a common longitudinal axis (D_k) of the clamping bodies (10) and act on the clamping bodies (10) to
15 generate the clamping force (F).

25. Clamping device in accordance with the above claim, characterized in that the clamping bodies (10) are seated on a axis or preferably shaft (11) or are made in one piece by a shaft (11), and that the spring elements (13) act on the shaft (11) such that a uniform clamping force (F) is generated over the length of the shaft (11).

20 26. Clamping device in accordance with one of the above claims, characterized in that the recess, which is formed on the jacket surface of the cylinder (1), and at least one said filler (8) inserted into the recess form the channel (6) and the limiting edges (1v, 8n) of the opening (7) of

the channel (6).

27. Clamping device in accordance with the above claim, characterized in that the recess is a straight axial groove with preferably parallel, flat side walls, which point at an angle to a radial (R) relative to the axis of rotation (D_z) of the cylinder (1), and one of which forms the opposite surface (4) or another said opposite surface for the at least one clamping body (10).

28. Clamping device in accordance with one of the above two claims, characterized in that the filler (8) has an inner edge, which is open toward two longitudinal sides of the filler (8), and in which it forms the opposite surface or another said opposite surface (5) for the at least one clamping body (10), the inner edge being preferably formed between two flat surfaces of the filler (8), which point at right angles toward each other.

29. Clamping device in accordance with one of the above claims, characterized in that the channel (6) widens in its cross section from the channel opening (7) on both sides of the channel opening (7), so that the channel opening (7) is formed between two said limiting edges (1v, 8n) which has an acute-angled cross section.

30. Clamping device in accordance with one of the above claims, characterized in that the clamping body (10) performs a rotary movement in a clamping direction of rotation when the flexible packing (2, 3) is pulled or pushed into the clamping gap, and that a blocking means is provided, which is coupled with the cylinder (1) and with the clamping body (10) and prevents a rotary movement of the clamping body (10) against the clamping direction of rotation in a releasable blocking engagement.

31. Clamping device in accordance with the above claim, characterized in that the blocking

means is formed by a friction brake or a free-running mechanism blocking the clamping direction of rotation.

32. Clamping device in accordance with one of the above claims, characterized in that the clamping body (10) is rotatingly driven.